

1 **Listing of Claims:**

2 1—22. (Cancel)

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4 23. (New) A method for printing, comprising:

5 obtaining color space requirements of a document to be printed, wherein
6 the requirements define a boundary of a color space associated with the document;

7 obtaining a rendering intent from an author;

8 selecting a printer from among a plurality of printers based on a best fit as
9 determined by the color space requirements of the document, the rendering intent
10 of the author and gamuts of each of the plurality of printers, wherein each gamut
11 defines a boundary of a device colors space indicating colors printable by the
12 printer; and

13 determining if color mapping is needed, and if so selecting a color map
14 from a selection comprising:

15 a first color map configured to map colors, located between the
16 boundary of the device colors space and the boundary of the input color space, to
17 the boundary of the device colors space, and to not map colors within the device
18 colors space to preserve their accuracy; and

19 a second color map configured to map colors, located between the
20 boundary of the device colors space and the boundary of the input color space,
21 past the boundary of the device colors space and into the device colors space, and
22 to map colors within the device colors space to preserve color separation between
23 them and the colors mapped into the device colors space.

1 24. (New) The method of Claim 23, wherein selecting the color map
2 additionally comprises:

3 giving an author an opportunity to select a color map that balances
4 preservation of color accuracy against color separation; and
5 using the selected color map in printer selection.

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7 25. (New) The method of Claim 23, wherein the selection of color maps
8 additionally comprises:

9 a third color map, which balances not mapping device colors to preserve
10 their accuracy against mapping device colors to preserve color separation between
11 device colors and colors mapped into the device colors space, wherein the
12 balancing comprises mapping device colors by less distance within the device
13 colors space than they are mapped by the second mapping.

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15 26. The method of claim 23, additionally comprising:
16 mapping colors within the document according to the selected color map;
17 and
18 printing the document.

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20 27. (New) The method of Claim 23, wherein determining if color
21 mapping is needed is based on the color space requirements of the document, the
22 rendering intent of the author and the device colors space of the selected printer.

1 28. The method of claim 23, wherein the best-fit analysis, comprises:
2 comparing volumes of the color space requirement of the document to the
3 gamuts of each of the plurality of printers;
4 comparing a percentage of colors within the document included in each of
5 the gamuts of each of the plurality of printers; or
6 comparing area within the document associated with colors in each of the
7 gamuts of each of the plurality of printers.

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9 29. The method of claim 23, wherein gamuts of each of the plurality of
10 printers are obtained from a library of printer gamut information.

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12 30. The method of claim 23, wherein gamuts of each of the plurality of
13 printers are obtained directly from the printers themselves.
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31. (New) A print system, comprising:

a documents requirement module configured to obtain a color space requirements of a document to be printed, wherein the requirements define a boundary of a color space associated with the document;

a preferences interface configured to obtain a rendering intent from an author; and

an evaluation module configured for selecting a printer from among a plurality of printers based on a best fit as determined by the color space requirements of the document, the rendering intent of the author and gamuts of each of the plurality of printers, wherein each gamut defines a boundary of a device colors space indicating colors printable by the printer;

wherein the evaluation module determines if color mapping is needed, and if so uses a color map from a selection comprising:

a first color map based on absolute colorimetric rendering intent, wherein colors between the boundary of the device colors space and the boundary of the input color space are mapped to the boundary of the device colors space, and colors within the device colors space are not mapped to preserve their accuracy; and

a second color map based on perceptual rendering intent, wherein colors between the boundary of the device colors space and the boundary of the input color space are mapped past the boundary of the device colors space and into the device colors space, and colors within the device colors space are mapped to preserve color separation between them and the colors mapped into the device colors space.

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2 32. (New) The print system of Claim 31, wherein the selection
3 additionally comprises:

4 a third color map, configured combine characteristics of the first and
5 second color maps.
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7 33. (New) The print system of Claim 31, wherein the print system is
8 configured to allow selection between the color maps, and the selection comprises:

9 selecting the color map based on absolute colorimetric rendering intent
10 when user input indicates a preference to preserve color accuracy within the
11 device colors space; and

12 selecting a color map based on perceptual rendering intent when user input
13 indicates a preference to preserve color separation between colors within the
14 device colors space and colors outside the device colors space.
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16 34. (New) The print system of Claim 31, wherein the evaluation module
17 obtains the gamuts of each of the plurality of printers from:

18 a library of printer gamut information; or

19 directly from the plurality of printers.
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1 35. The print system of claim 31, wherein the gamut management
2 module is configured to perform a best-fit analysis, the analysis comprising:

3 comparing the color space requirements of the document with a device
4 colors space of each of two or more printers; and

5 comparing how well each printer would respond to an author's indicated
6 preference for absolute colorimetric rendering intent or perceptual rendering
7 intent.

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9 36. The printer system of claim 31, wherein the printer system is
10 configured to allow selection between the first and second color map based on an
11 author's indicated preference for absolute colorimetric rendering intent or
12 perceptual rendering intent.

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14 37. The printer system of claim 31, additionally comprising:

15 a sensor array configured to evaluate printed documents and update the
16 boundary defining the device colors space of each printer.

1 38. (New) A print system configured to select a printer to print a
2 document, comprising:

3 a plurality of printers, wherein a gamut of each printer is defined by a
4 boundary indicating a device colors space comprising colors printable by the
5 printer;

6 a sensor array configured to evaluate printed documents and update the
7 boundary defining the device colors space for each printer;

8 a print server configured to select a printer from among the plurality of
9 printers, wherein the selecting is based on a best fit analysis as determined by
10 color space requirements of the document, a rendering intent of an author and
11 gamuts of each of the plurality of printers; and

12 a custom gamut mapping module, comprising:

13 a first color map based on absolute colorimetric rendering intent,
14 wherein colors outside the boundary of a device colors space are mapped to
15 the boundary of the device colors space, and colors within the device colors
16 space are not mapped to preserve their accuracy; and

17 a second color map based on perceptual rendering intent, wherein
18 colors outside the boundary of the input color space are mapped into the
19 device colors space, and colors within the device colors space are mapped
20 to preserve color separation between the them and the colors mapped into
21 the device colors space.

1 39. (New) The print system of Claim 38, wherein the custom gamut
2 mapping module additionally comprises:

3 a third color map configured to map device colors by less distance in the
4 device colors space than the colors are mapped by the second mapping.

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6 40. (New) The print system of Claim 38, wherein the print system is
7 configured to allow selection between the color maps, and the selection comprises:

8 selecting the color map based on absolute colorimetric rendering intent
9 when user input indicates preference to preserve color accuracy within the device
10 colors space; and

11 selecting a color map based on perceptual rendering intent when user input
12 indicates preference to preserve color separation between colors within the device
13 colors space and colors outside the device colors space.

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15 41. (New) The print system of Claim 38, wherein the print system is
16 configured to allow selection between the color maps, and the selection
17 additionally comprises:

18 selecting a color map that balances preservation of color accuracy and color
19 separation when indicated by user input.

1 42. The print system of claim 38, wherein the best-fit analysis,
2 comprises:

3 comparing a color space required by the document with an input color
4 space of each of two or more printers; and

5 selecting a printer from among those compared according to a criterion
6 based in part on an author's indicated preference for absolute colorimetric
7 rendering intent or perceptual rendering intent.
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9 43. (New) The print system of claim 38, wherein determining if color
10 mapping is needed is based on the color space requirements of the document, the
11 rendering intent of the author and the device colors space of the selected printer.
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13 44. The print system of claim 38, wherein the best-fit analysis,
14 comprises:

15 using an algorithm to determine best fit, wherein the algorithm is selected
16 in response to input from the author.
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